

REMARKS

As an initial matter, Applicant would like to thank Examiner Ford for conducting an Interview on February 24, 2009 with the undersigned counsel. By this response, claims 31 and 33 have been canceled, and claims 27 and 32 have been amended. The claim amendments are based on the Interview. No statutory new matter has been added.

The undersigned believes that the Interview will prove effective in furthering prosecution on the merits. It is believed that agreement was reached that Applicant's disclosed construction indeed differs from the cited prior art. In particular, Applicant's claimed invention provides air communication only among controller 69, the SCT 18 and the air passages 58 around Applicant's units 19-22, housed in casings 55b-e, respectively. In contrast, each of Masao's units are not isolated from each other with respect to air flow. Thus, Masao's device requires extra blowers and filters so as to maintain clean air during down flow. None of Kuwabara, Hirose, Hayashi, Nakai or Mahara et al. remedy these deficiencies of Masao. A more comprehensive discussion that further explains the claimed invention's distinctions from the prior art is set forth below.

Rejections Under 35 U.S.C. § 103 (a)

I. Claims 1, 8-12 and 30 stand rejected as being unpatentable over Masao (JP 2002-064044 – EMT was used) in view of Hirose (US 5762745) and in view of Kuwabara et al. (JP 04-217353 – reliance on English Abstract). The rejection as to claims 1, 8-12 and 30 is traversed.

Claim 1 is specific in describing “*that the air blown from the air blowing mechanism*” is conducted “*to pass through the coating unit*” and “*the air passageway*”. According to claim 1, however, such air flows “*around the casing of the temperature control unit*” and “*around the casing of the heating unit*”. It does not flow “*through*” but rather “*around*” the temperature control and heating units. As was done during the interview, to ensure full appreciation of Applicant's invention, reference will be made to Applicant's preferred embodiments such as shown in FIG. 13. In the Fig. 13 embodiment, the temperature-humidity control section 69 supplies air controlled at a prescribed temperature and humidity to the SCT 18, which is encapsulated by casing 55a. As shown, air flows through the SCT's casing to exit at passage 68. Air leaving SCT 18 via passage 68 circulates around the periphery of the film thickness unit 19,

temperature control unit 20, heating unit 21 and baking unit 22. Each of process units 19-22 are stacked in ascending order and encapsulated by casings 55b-e, respectively. Hence, air flows around each of the isolated casings 55 55b-e so as to achieve heat insulation between the casings. Applicant's arrangement with the ascending order of units and the upward flow of air through the tower suppresses non-uniformity in the quality of coating films in the SCT 18, which non-uniformity otherwise is caused by SCT temperature changes due to dissipation of heat from other process units. Upward flowing air travels via clearance/passageway 58 to the exhaust port 57a and subsequently is forced to the exhaust device 59.

In addition to the aforementioned features, Applicant also points out that one such control section 69 is capable of supporting a plurality of process towers. Therefore, less space is required. Further, manufacturing costs are reduced because fewer control sections are necessary.

Reference now is made to Masao's apparatus as illustrated in Drawing 2 of the English language translation. Here, an air supply means 20 blows air downwardly into substrate processing device 1. The air supply means comprises a chemical filter 21, blower 20, and second, particle filter 23. Clean air is conducted by the carrying path 10, which is centrally located in the processing device, into and through each of units HP1-4 and CP1-2. As for the ACU (i.e., two on respective sides of carrying path 10), air flows into each ACU unit via a blower 32 and enters each SCU through yet another particle filter 33. Because air flows through all of Masao's tower units HP1-4, CP1-2, the ACU's and SDI and SCI, there is no isolation of units with respect to air flow. Hence, to those of ordinary skill in the art Masao could not teach or suggest Applicant's claim requirements of passing air "through the coating unit" but only "around" the heating unit and temperature control unit. Masao's units are not isolated from each other with respect to air flow, and therefore, unlike Applicant's arrangement, require extra blowers and filters in order to maintain clean air during downward (not upward) flow.

Hirose and Kuwabara fail to remedy Masao's above-described deficiencies. Accordingly, the combination of Masao, Hirose and Kuwabara would not have rendered claim 1 *prima facie* obvious to one of ordinary skill in the art. As such, Applicant courteously requests withdrawal and reconsideration of the rejection as to claim 1, and claims 8-12 and 30, dependent thereon.

II. Claims 6, 17-18 and 20 stand rejected as being unpatentable over Masao in view of Hirose in view of Kuwabara, and further in view of Hayashi (US 6,350,316). The rejection as to claims 6, 17-18 and 20 is respectfully traversed.

Applicant submits that Hayashi likewise fails to remedy the deficiencies of Masao, Hirose and Kuwabara, as described in connection with claim 1 above. Hence, for the reasons submitted for claim 1, *supra*, Applicant respectfully requests withdrawal and reconsideration of the rejection as to claims 6, 17-18 and 20.

III. Claims 21-23 and 32-34 stand rejected as being unpatentable over Masao in view of Hirose Kuwabara, and Hayashi, and further in view of Nakai (US 6,071,047) The rejection is respectfully traversed for claims 21-23 and 32-34.

A. Regarding claims 21-23, Applicant submits that Nakai also fails to remedy the deficiencies of Masao, Hirose, Kuwabara and Hayashi with regard to claims 1 and 20 above. For the reasons submitted in claim 20, and claim 1, *supra*, Applicant thus also respectfully requests withdrawal and reconsideration of the rejection as to claims 21-23.

B. Claim 32 has been amended to recite particulars of Applicant's process tower structure as recited in claim 1. As such, claim 32 now also recites:

“a process tower comprising a plurality of process units stacked one above the other for performing a series of processes for forming an insulating film on the substrate, said plurality of process units including a coating unit for coating a substrate with a coating liquid containing a material of an insulating film, a temperature control unit for controlling the substrate before coating with the coating liquid at a prescribed temperature and a heating unit for heating the substrate having the coating liquid applied thereon,

each of the plurality of process units is housed in a casing,

the process tower includes a housing which has a plurality of levels for detachably accommodating the casings of the process units,

the casing of the temperature control unit is set in the housing at a level below the casing of the heating unit, and the casing of the coating unit is set in the housing at a level below the casing of the temperature control unit,

the casing of the heating unit, the casing of the temperature control unit and the casing of the coating unit are arranged with an air passageway interposed therebetween within the housing so as to achieve heat insulation therebetween,

an air blowing mechanism is connected to the coating unit and configured to blow air having a controlled temperature and humidity into the coating unit so as to control the temperature and humidity of the coating unit,

the casing of the coating unit is constructed to cause the air blown from the air blowing mechanism into the coating unit to be exhausted from the coating unit into the air passageway,

the air passageway is connected to an exhaust device through an exhaust port formed on the housing of the process tower and located above the casing of the heating unit,
the insulating film-forming apparatus is designed such that the air blown from the air blowing mechanism is forced by the exhaust device to pass through the coating unit and flow upward into the air passageway, then flow upward through a portion of the air passageway around the casing of the temperature control unit and a portion of the air passageway around the casing of the heating unit, in this order, and then exhaust at the exhaust device, ... ”.

Hence, as seen from the foregoing, claim 32 now likewise requires upward airflow “*through the coating unit*” but “*around*” the casing of each of the temperature control unit and the heating unit.

As discussed in connection with claim 1, Hayashi and Nakai fail to remedy the deficiencies of Masao, Hirose and Kuwabara with respect to Applicant’s claimed structure and airflow pattern. This is because Masao’s structure does not disclose process units that are isolated from one another. Air entering Masao flows downward through each of the process units. Accordingly, the asserted combination of prior art would not have rendered amended claim 32 *prima facie* obvious to one of ordinary skill in the art. Therefore claim 32, as amended, patentably distinguishes thereover. Accordingly, Applicant courteously solicits withdrawal and reconsideration of the rejection as to claim 32, and claims 33-34, dependent thereon.

IV. Claims 27 and 31 stand rejected as being unpatentable over Masao, Hirose, and Kuwabara, in further view of Mahara et al (US 6,309,116). The rejection is moot as to claim 31, and traversed as to claim 27.

As to claim 27, Applicant submits that Mahara fails to remedy the deficiencies of Masao, Hirose and Kuwabara as to claim 1. Therefore, Applicant advances similar arguments on the merits as made for claim 1, *supra*, herein. In view of the foregoing, Applicant likewise solicits withdrawal and reconsideration of the rejection of claim 27.

CONCLUSION

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Therefore, it is respectfully requested that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

If any fees under 37 C. F. R. §§ 1.16 or 1.17 are due in connection with this filing, please charge the fees to Deposit Account No. 02-4300, Order No. 033082M252.

Respectfully submitted,
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Dated: March 23, 2009

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